

DATALOGGERS

DataHog2 with Thermocouples e.g. For Sap Flow Measurements

It is advised to use a differential voltage input on the DataHog2 for thermocouple sensors so that input ground circulating currents within the logger do not contribute to potentials being measured. A ground reference must also be made, there are several options for this.

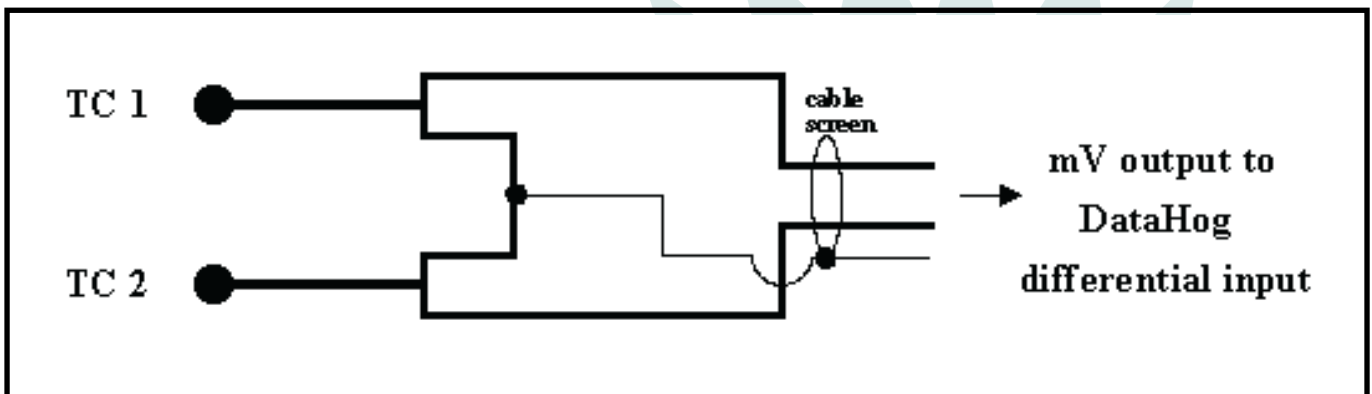
If the differential input is allowed to 'float' without a ground reference, it may go to any common mode voltage between +5 and -5 volts relative to input ground. If the common mode voltage exceeds ± 2 volts relative to input ground then errors will result.

The best solution (described in option A below) is to make a zero ohm ground reference in the DataHog Connector (plug), effectively connecting either input (usually the negative input) to the input ground connection.

The DataHog2 has a software selectable ground reference which employs a 100 kohm resistor (chosen by activating Termination Code 01 or 02). This is OK to use with thermocouples providing the sensor tip is isolated relative to the input ground. If in practice the tip is not completely isolated at all times, errors will occur. An input ground referenced via 100 kohm resistor will be more susceptible to noise than one with a lower resistance ground reference.

Alternatively, the screen of the cable can be used to make a ground connection - see the 3 wire connection Option C below.

2 WIRE CONNECTION



DataHog2 with Thermocouples e.g. For Sap Flow Measurements (cont)

OPTION A - 2 WIRE CONNECTION:

Connect negative output to DataHog Pin 3
Connect positive output to DataHog Pin 4
Connect Pin 3 to Pin 5 for a zero ohm ground reference
Use Termination Code 00 for no ground return

OPTION B - 2 WIRE CONNECTION:

Connect negative output to DataHog Pin 3
Connect positive output to DataHog Pin 4
Use Termination Code 02 for ground return (via internal 100 kohm resistor)

3 WIRE CONNECTION

OPTION C - 3 WIRE CONNECTION:

Connect negative output to DataHog Pin 3
Connect positive output to DataHog Pin 4
Connect ground (cable screen) to DataHog Pin 5
Use Termination code 00 for no ground return

FOR ALL WIRING OPTIONS

USE SCALE CODE 01 Ax+B TO GIVE mV CONVERSION TO TEMPERATURE

This will be approximate, a linear calculation for the range of temperature to be measured.